

**WEST**BAD DATES☐  

L2: Entry 1 of 3

File: DWPI

Oct 23, 2002

DERWENT-ACC-NO: 2003-024080

DERWENT-WEEK: 200305

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TITLE: Spinel-type lithium manganate manufacturing method for anode of non-aqueous electrolyte secondary battery, involves neutralizing ground manganese dioxide, adding phosphorus and specific compound, and baking

PATENT-ASSIGNEE:

ASSIGNEE

MITSUI MINING &amp; SMELTING CO LTD

CODE

MITG

PRIORITY-DATA: 2001JP-0111751 (April 10, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2002308628 A	October 23, 2002		019	C01G045/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP2002308628A	April 10, 2001	2001JP-0111751	

INT-CL (IPC): C01 G 45/00; H01 M 4/02; H01 M 4/58; H01 M 10/40

ABSTRACTED-PUB-NO: JP2002308628A

BASIC-ABSTRACT:

NOVELTY - Manganese dioxide, formed by electrolytic deposition, is ground and neutralized with sodium hydroxide or sodium carbonate. Electrolytic manganese dioxide having specific surface area of 50 m<sup>2</sup>/g or more is mixed with phosphorus (0.1-1 weight percent) and a compound (C) to substitute 0.05-12.5 mol% of manganese. The mixture is then baked to form spinel-type lithium manganate.

DETAILED DESCRIPTION - Manganese dioxide which is subjected to electrolytic deposition is ground and neutralized with sodium hydroxide or sodium carbonate so that the pH is made into 2 or more. Electrolytic manganese dioxide having specific surface area of 50 m<sup>2</sup>/g or more is mixed with phosphorus in an amount of 0.1-1 weight percent and a compound (C) so that the compound substitutes 0.05-12.5 mol% of manganese. The compound (C) contains an element chosen from lithium raw material, magnesia, alumina, nickel, alumina, cobalt, iron, copper, zinc, calcium, silicon, phosphorus, titanium, chromium, sodium, potassium, vanadium and boron. The mixture is then baked to form spinel-type lithium manganate.

INDEPENDENT CLAIMS are included for the following:

- (1) Anode (5) containing spinel-type lithium manganate; and
- (2) Non-aqueous electrolyte secondary battery having above anode, a cathode (4) and an electrolyte.

USE - For anode of non-aqueous electrolyte secondary battery.

ADVANTAGE - The method suppresses elution amount of manganese, and provides excellent battery characteristics such as high temperature storage characteristics, high temperature cycle characteristics and current load factor.

DESCRIPTION OF DRAWING(S) - The figure shows sectional view of non-aqueous electrolyte secondary battery.

Cathode 4

Anode 5

CHOSEN-DRAWING: Dwg.1/1

TITLE-TERMS: SPINEL TYPE LITHIUM MANGANATE MANUFACTURE METHOD ANODE NON AQUEOUS ELECTROLYTIC SECONDARY BATTERY NEUTRALISE GROUND MANGANESE ADD PHOSPHORUS SPECIFIC COMPOUND BAKE

DERWENT-CLASS: E31 L03 X16

CPI-CODES: E31-K04; E31-P02C; E31-P05A; E31-Q07; E35; L03-E01B5C;

EPI-CODES: X16-B01F; X16-E01; X16-E01C;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

A103 A111 A119 A212 A220 A313 A422 A423 A424 A425  
A426 A427 A428 A429 A430 A940 A980 B105 B114 B115  
B701 B702 B711 B712 B713 B720 B803 B815 B831 C108  
C550 C801 C802 C803 C804 C805 C807 M411 M424 M720  
M740 M904 M905 N120 N421 N515 Q454

Markush Compounds

200080-66401-K 200080-66401-P

Chemical Indexing M3 \*02\*

Fragmentation Code

A425 A940 C108 C550 C730 C801 C802 C803 C804 C805  
C807 M411 M730 M904 M905

Specific Compounds

01936K 01936S

Registry Numbers

1936S 1936U

Chemical Indexing M3 \*03\*

Fragmentation Code

A111 A940 C101 C108 C550 C730 C801 C802 C804 C805  
C807 M411 M781 M904 M905 M910

Specific Compounds

01514K 01514V 01514U

Registry Numbers

1514S 1514U

Chemical Indexing M3 \*04\*

Fragmentation Code

A111 A940 C106 C108 C530 C730 C801 C802 C803 C805  
C807 M411 M781 M904 M905 M910

Specific Compounds

01287K 01287V 01287U

Registry Numbers

1287S 1287U

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1287S; 1287U ; 1514S ; 1514U ; 1936S ; 1936U

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2003-005898

Non-CPI Secondary Accession Numbers: N2003-019137

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L4: Entry 1 of 3

File: JPAB

Aug 31, 2001

PUB-NO: JP02001236957A

DOCUMENT-IDENTIFIER: JP 2001236957 A

TITLE: MANGANESE DIOXIDE FOR LITHIUM PRIMARY BATTERY AND ITS MANUFACTURING METHOD

PUBN-DATE: August 31, 2001

## INVENTOR-INFORMATION:

NAME

COUNTRY

SUMIDA, HIROSHI

ENOMOTO, KIYOTERU

SATO, MASAKI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

MITSUI MINING &amp; SMELTING CO LTD

APPL-NO: JP2000048802

PRIORITY DOCUMENT

APPL-DATE: February 25, 2000

INT-CL (IPC): H01 M 4/50; H01 M 6/16

## ABSTRACT:

PROBLEM TO BE SOLVED: To provide manganese dioxide for a lithium primary battery for allowing improved characteristics related to working environment, reduced amount of sodium eluted, and improved low-temperature characteristics and storage characteristics of the battery and its manufacturing method.

SOLUTION: Manganese dioxide for a lithium primary battery is an electrolytic manganese dioxide obtained through electrolysis according to the electrolysis process followed by sodium hydroxide neutralization and contains 0.05 to 0.2 wt.% of sodium.

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PRIORITY DOC.

L10: Entry 1 of 7

File: JPAB

Aug 31, 2001

PUB-NO: JP02001236957A

DOCUMENT-IDENTIFIER: JP 2001236957 A

TITLE: MANGANESE DIOXIDE FOR LITHIUM PRIMARY BATTERY AND ITS MANUFACTURING METHOD

PUBN-DATE: August 31, 2001

## INVENTOR-INFORMATION:

NAME

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SUMIDA, HIROSHI ✓

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